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 EISENHUT, D.G. Division of Operating Reactors

SUBJECT: Forwards info re auxiliary feedwater sys requirements in response to NRC 790921 request. Further info requested to be submitted by 800430.

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Carolina Power & Light Company

October 31, 1979

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SERIAL NO.: GD-79-2764

Mr. Darrell G. Eisenhut, Acting Director
Division of Operating Reactors
United States Nuclear Regulatory Commission
Washington, D.C. 20555

H. B. ROBINSON UNIT 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
AUXILIARY FEEDWATER SYSTEM REQUIREMENTS

Dear Mr. Eisenhut:

Attached please find Carolina Power & Light Company's (CP&L) responses to the items listed in Enclosure 1 to your letter of September 21, 1979. The responses are numbered to correspond with the numbers shown in Enclosure 1 of your letter.

Concerning the information requested in Enclosure 2 of your letter of September 21, we are presently not able to provide to you the requested information. This is due to the time required to research the original plant design transient and accident calculations performed to establish auxiliary feedwater system requirements and the time required to verify as-built conditions contained in the plant's and architect-engineer's records. We estimate that this information can be assembled and transmitted to you by April 30, 1980. We trust this schedule will be acceptable.

Following this submittal, it may be appropriate for us to meet with you to discuss further these issues. A member of our organization will be in contact with you to arrange any meetings that are determined to be necessary.

If you have any questions on any of these items, please do not hesitate to contact our staff.

Yours very truly,

M A M. Dwyer
for E. E. Utley

Executive Vice President
Power Supply & Customer Services

EEU/jcb
Attachment

cc: Mr. J. D. Neighbors (NRC)

Carolina Power & Light Company
H. B. Robinson Unit No. 2
Auxiliary Feedwater System Responses

This attachment contains responses by Carolina Power & Light Company to the items contained in Enclosure 1 to D. Eisenhower's letter of September 21, 1979.

X.6.3.1.1(GS-1) Response: The H. B. Robinson Unit 2 Auxiliary Feedwater System (AFW) conforms to the stated requirement relative to the two of three AFW pumps and associated essential equipment for operation under current Technical Specifications. Two pumps and associated equipment only are required because no single active failure could reduce the remaining operable components to below the one pump and flowpath required for safe shutdown of the plant. This is in accordance with the description and system safety features evaluation provided in FSAR section 10.3.1. In addition, the plant emergency power system described in FSAR section 8.2.3 is designed such that no single failure in this system would result in a compromise to the AFW system's ability to perform its design safety function. An out of service time of 12 hours for the first of two pumps and flowtrain is not appropriate for the Robinson plant due to the capacity of the installed AFW system. A Technical Specification on the third pump is not appropriate since it presumes motive power is not available. This is outside the design basis of the plant. Therefore, no change in the requirements for operability of the AFW system are considered necessary for the continued safe operation of the plant.

X.6.3.1.2(GS-2) Response: H. B. Robinson Unit 2 currently complies with the stated requirements for locked open valves with the valve line-up procedure contained in Plant Operating Procedure OP-14A. The monthly periodic testing of the AFW system verifies the proper positioning of all normal suction valves because the pumps would trip as a result of low suction pressure if the valves were not properly aligned. The plant has no single valve or set of valves in series which could interrupt all AFW flow.

In order to preclude the inadvertent operation of locked valves, the locked valve key is administratively controlled. Also, the operation of all system valves for maintenance are controlled by Operations Work Procedures AFW-1 through AFW-12. These procedures are to be incorporated into the Plant Operating Manual by January 1, 1980. Any valves operated during periodic testing are returned to their pretest status on a valve by valve basis in accordance with the test procedure.

It is CP&L's position that the existing controls and methods of valve alignment verification are entirely adequate to ensure the availability of normal suction supply to the AFW system and therefore, no Technical Specification revisions are deemed necessary.

X.6.3.1.3(GS-4) Response: H. B. Robinson Unit 2 does not presently have a procedure for transferring to alternate water supplies for AFW. A new procedure, which will cover the two cases identified here, is currently being developed and will be incorporated into the Plant Operating Manual by January 1, 1980.

X.6.3.1.4(GS-5) Response: The steam driven AFW train is capable of providing the required AFW flow independent of any A.C. power supply for a minimum of two (2) hours at hot standby. Operation in this mode however does require manual operator action to realign the steam admission valves, the motor operated discharge isolation valves, and the cooling water valves for the bearing oil cooler. Since back-up cooling water can be supplied to the oil cooler independent of A.C. power, no dedicated operator would need to be stationed at the pump.

The capability to operate the steam driven AFW pump independent of all A.C. power sources provides negligible enhancement of the plant's safety features. This is because the loss of all A.C. power is not a credible accident due to the remote probability of such an event. However, since the Robinson plant already has the capability to operate the steam driven train under these conditions, a new emergency procedure will be developed to address this situation.

X.6.3.1.5(GS-6)

Response: Existing H. B. Robinson Unit 2 plant procedures provide for operator verification that the proper system alignment has been performed prior to the performance of the periodic test. Also, the periodic test of the motor driven pump train verifies the valve alignment of the suction valves and the periodic test of the turbine driven pump train verifies the alignment of the suction valves and the discharge valves of this train. Each periodic test also requires the verification that valves operated during the test have been returned to pretest status on a valve by valve basis. Therefore, further verification by a second operator is deemed unnecessary.

Valve alignment for normal maintenance work is controlled by existing plant procedures which ensure the return of these valves to their premaintenance status (see GS-2). Therefore, additional verification by a second operator is considered unnecessary.

Following extended cold shutdown periods, the AFW system valve alignment is verified by a single operator. Flowpath availability and therefore, valve alignment, is reverified for the motor driven train by a flow test. Flowpath availability and flow capability for the steam driven train is reverified by the periodic test, which is performed following extended periods of cold shutdown, and therefore, no additional flow tests are necessary for this train.

Since current administrative requirements ensure the performance of the flow tests, enforcement by Technical Specifications is not considered necessary.

- X.6.3.1.6(GS-7) Response: The AFW system automatic start signals and associated circuitry have been verified as safety related and in conformance to the requirements of recommendation GL-5.
- X.6.3.1.7 Response: Periodic testing of the normally locked closed service water and deep well valves will be performed in conjunction with the In-Service Inspection (ISI) program during each refueling outage.
- X.6.3.1.8 Response: All motor operated steam admission valves are currently tested on a monthly basis by Periodic Test 22.1 in accordance with the Technical Specification surveillance requirements of section 4.8.2.
- X.6.3.2.1 Response: H. B. Robinson Unit 2 is currently equipped with redundant level indication and one low level alarm. A redundant low level alarm will be installed as soon as possible based on equipment delivery. The low level alarm setpoint allows thirty-five minutes for operator action.
- X.6.3.2.2 Response: A 72-hour endurance test will be performed as required. The test will be completed by the end of the 1980 refueling outage due to system configuration changes required.
- X.6.3.2.3 Response: Indication of AFW flow to each steam generator will be installed by January 1, 1980, in accordance with our October 18, 1979 response concerning item 2.1.7.6 of NUREG-0578.
- X.6.3.2.4 Response: This item is not applicable to H. B. Robinson.

X.6.3.3.1

Response: The valves in the normal water supply line of H. B. Robinson Unit 2 upstream of the alternate water supply tie-ins consist of one check valve and one, normally locked open, manual gate valve. Since this gate valve could only fail in the most conservative position (open) and cannot be inadvertently operated, there is no advantage to be gained through redundancy, or additional surveillance requirements. Therefore, no modifications or Technical Specification changes are planned.

X.6.3.3.2(GL-3)

Response: This requirement is not consistent with the requirements for diversity of emergency power system of General Design Criteria GDC-39, to which this plant was designed, constructed, and licensed. Since there is no apparent change in the probability of diesel generator failure, there is not basis for changing the power source requirements for operability of the AFW system.

In addition, this system is manually operable independent of any A.C. power source. Specifically, the turbine steam admission valves and the motor operated valves are manually operable. The time required to manually initiate AFW is within the time required to prevent exposure of the steam generator tubesheets in the event of a loss of Feedwater (FW) accident. Approximately four minutes are required to manually initiate AFW from the steam driven train. The steam generators require more than thirty-one minutes to boil dry (per WCAP 9601, Table 4.2-1). The turbine pump lube oil cooler can also be operated independent of A.C. power through manual valve realignment in order to utilize condensate as cooling water. Steam generator level can be controlled by throttling the motor operated isolation valves in response to steam generator level indication from the auxiliary shutdown panel located near the valves. Level indication for B and C generator are provided independent of A.C. power.

Due to the very low probability of complete loss of all A.C. power and the inherent ability to provide AFW manually to the steam generators within the required time period, this requirement is considered to be not necessary for the continued safe operation of this plant.

X.6.3.3.3(GL-5)

Response: The AFW system automatic initiation signals and circuits meet safety grade requirements.

X.6.3.3.4

Response: The concerns of this item will be evaluated and a safety analysis performed if necessary. This evaluation will be completed by June 1, 1980.

